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Thermal extraction of pectin from waste apple pomace using choline chloride based eutectic solvents

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Processing of waste by-products of agricultural origin generated by different kinds of industries can entail environmental problems. Waste apple pomace (biomass) could play an important role in pectin production, offering economic advantages and decreasing the environmental impact. Pectin and pectin derived oligosaccharides have many applications in food and pharmaceutical products as gelling agents and stabilizers. Traditional method for pectin extraction involved the use of diluted mineral acids at elevated temperatures, with yields of about 10 to 15%. Because of the relatively long period of exposure to direct heating, thermal degradation of pectin often occurs in this process. The use of deep eutectic solvents could be the solution to this problem. Deep eutectic solvents have shown superior properties when it comes to targeted extraction of certain components from biomass, while providing mild conditions when compared to conventional methods. The aim of this paper is thermal extraction of pectin from waste apple pomace using choline chloride based deep eutectic solvents combined with different acids (oxalic acid, lactic acid and malic acid). Properties of extracted products were examined using FTIR spectroscopy and differential scanning calorimetry.

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